DETAILED ACTION

1.		Applicant's response has been filed on 10/09/2007.

		Claims 25-44 and 46-59 are pending.

Claim Rejections - 35 USC § 103

2.		The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.		Claims 25-34, 36-44, 46-55, and 57-59 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Robinson (US Patent No. 5,884,282) in view of Altschuler et al. (US Patent No.

6,012,052), Smolen (US Patent No. 5,915,243), and Fayyed et al. (US Patent No. 6,643,645).

		Robinson discloses a computer implemented collaborative filtering system (Col. 3, Lines 14-

27, 62-65).

		With regard to claims 25, 48, and 58, and the limitation of a personality type generator that

analyzes known attributes relating to a user and determines the user's personality type when

compared to substantially similar to personality types of disparate users, wherein the personality

types of the plurality of disparate users are based at least in part upon attributes related to the users,

Robinson discloses analyzing a user's preferences or ratings for an item (i.e., attributes) and using

probability values to make recommendations to users with similar preferences (i.e., personality types) (Col. 2: 10-57).

With regard to the limitation of an attribute value predictor that predicts unknown attributes relating to the user based at least in part upon the calculated probabilities, Robinson discloses providing recommendations to a user, based on the user's previous ratings (Co. 2:34-39). The unknown attribute, in this case, is the user's rating or preference of the recommended item. Since the user has not provided a rating for the recommended item, the user's preference (i.e., attribute) is unknown. Therefore, the system predicts that a user will prefer a recommended item (i.e., predicts an unknown attribute relating to the user). This is performed, based at least in part of calculated probabilities (Col. 2: 26-31). Robinson also discloses that the attribute predictor determines a set of values for each unknown attribute (Col. 14, Lines 53-56; Col. 16, Line 59-Col. 17, Line 8).

While Robinson does not employ the exact term "personality type" in disclosing the invention, Robinson discloses the feature of a user's preferences or ratings for items (Col. 1: 21-26; Col. 2: 10-26).

However, Robinson does not specifically disclose calculating a probability that the user has a personality type, and using the probability for each personality type in the attribute predictor. Robinson also does not specifically disclose a query cost-benefit analyzer that employs the determined set of values to minimize the number of explicit queries to the user while maximizing accuracy of a calculated personality probability and a database manager that employs the determined set of values to determine an entry of a database to prune such that the entry when removed has minimal effect on the accuracy of the prediction.

Altschuler et al. teach a system for collaborative filtering (Col. 5, Lines 12-18) including determining the probability that a user belongs to a specific cluster of users and determining a

resource to provide the user based on the probability of each cluster (Col. 31, Lines 7-40), clusters representing groups of similar users.

Smolen discloses a product promoter including the step of using a profile value to eliminate specific questions so that the specific questions do not have to be posed to the user (Col. 5, Lines 31-49).

Fayyad et al. disclose a database manager that employs the determined set of values to determine an entry of a database to prune such that the entry when removed has minimal effect on the accuracy of the prediction (Col. 1, Line 65-Col. 2, Line 11; Col. 8, Lines 2-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the probabilities that a user has a personality type in predicting unknown attributes such that the user is provided with a more personalized prediction. Since each user is possibly unique from all current and previous users, it is obvious that the user may belong to a plurality of personality types to a degree determined by the probabilities.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the determined set of values to eliminate queries to be posed to the user, thus minimizing the number of queries to the user, thereby providing the predictable result of eliminating queries that are of little or no consequence to the collaborative filtering system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the determined set of values to prune entries of the database, thereby providing a database that requires less processing time while maintaining a high accuracy level.

With regard to claims 26 and 59, and the limitation of a recommendation facility that provides recommendations to the user based at least in part upon the predicted attributes, Robinson discloses this feature, as previously described (Col. 2: 34-36).

With regard to claims 27 and 29, Robinson discloses that, prior to presenting a recommendation to a user, different types of questions may be presented, such as ratings questions, or simple short answer questions, which vary in the degree to which they are intrusive to the user (Col. 30: 4-19). Thus, the invention of Robinson inherently includes the capability of measuring the cost of disturbing a user. Additionally, the benefit of recommending a product or service to a user is higher if the projected rating of the user for that item is high (Projected rating concept described previously). Robinson discloses that if a user's predicted (projected) rating for a movie is high, then that particular movie should be recommended to the user. If the projected rating is too low, then the user should not be recommended the movie (Col. 13: 9-23). Therefore, the benefit of providing a recommendation to a user is determined, before a recommendation will be made. As an example, if a user were projected to rate a specific movie poorly, and the system were to recommend that movie to the user, the user would obviously not appreciate the recommendation. Such a recommendation could be considered an annoyance to the consumer, since no consumer wants to receive recommendations for a movie they most likely wouldn't enjoy. Therefore, the invention of Robinson inherently includes the capability of measuring the cost of disturbing a user (i.e., presenting a recommendation for an item that the customer may or may not want, depending on his or her projected rating for that item) against the benefit of providing a recommendation to a user (i.e., a customer would be more likely to purchase an item if his or her projected rating is favorable for the item), prior to presenting a recommendation to a user.

With regard to claim 28, and the feature of a query facility that requests an attribute from the user, Robinson discloses that a user may provide ratings (i.e., attributes) via a keyboard, touch screen, or other means (Col. 3:62 - Col. 4: 6; Col. 6: 37-40).

With regard to claims 30 and 50, and the limitation the query facility employs expected value of information in connection with requesting the attribute from the user, Robinson discloses generating projected (i.e., expected) ratings of users (Col. 15:59 - Col. 16: 12). Robinson discloses the feature of predicting the possible ratings a specific user may provide, based on inferences with regard to other users with similar preferences (Col. 14: 1-8).

With regard to claims 31 and 51, Robinson discloses the feature wherein attributes are selectively requested from the user based upon one or more of a discriminatory value of information (i.e., items) relating to the user and a consideration of a likelihood that the user is familiar with items being asked about given uncertainty about the user, Robinson discloses generating projected ratings (Col. 2: 42-48).

With regard to claims 32 and 52, Robinson discloses selectively requesting attributes from the user based upon a discriminatory value of the information, including an analysis of a consideration of a likelihood of different answers to a query given uncertainty about the user (Col. 8: 36-67).

With regard to claim 33, and the feature wherein the personality types of the plurality of disparate users are generated using at least known attributes relating to each of the disparate users, Robinson discloses that the user preferences for items (i.e., personality types) are generated based on user ratings for items (i.e., known attributes), as previously described.

With regard to claim 34, and the feature wherein the known attributes relating to the plurality of disparate users are accessible from a data table, Robinson discloses that the user ratings (i.e., attributes) may be stored in a database (i.e., data table) (Col. 6: 35-40).

With regard to claims 36 and 37, Robinson discloses known attributes relating to the user associated with a similarity value (i.e., calculated variability) (Col. 2:31-34), wherein the variability is Gaussian (i.e., binomial distribution) (Col. 6: 48-50).

With regard to claims 38 and 55, Robinson discloses that the personality types are at least partially defined by vectors (i.e., S={...), the vectors include attributes relating to the plurality of disparate users (Col. 8: 58).

With regard to claim 39, Robinson discloses the probabilities that the user has a personality type substantially similar to personality types of the plurality of disparate users are calculated at least partially by a frequency that the plurality of disparate users rate items according to the vectors (Col. 18:12-24).

With regard to claim 40, Robinson discloses a number of occurrences the disparate users rate items according to the vectors are explicitly counted (i.e., the number of movies they've both seen) (Col. 18: 3).

With regard to claims 41 and 43, and the feature determining at least one probability that a user has a personality type (i.e., preference for a particular item) similar to other users (as in claim 41), and predicting unknown attributes related to the user (as in claim 43), Robinson discloses determining similarity values "S" for a specific user, as compared with other users who have rated items that the specific user has rated, and also discloses determining projected ratings "Rp" that a user might be expected to provide (Col. 2: 10-57; Col. 8:58 Equation 2; Col. 9: 48-57). While Robinson does not explicitly provide the equations as recited, however, Robinson does disclose that other algorithms may be used to calculate the similarity value "S", recommendation level "R_alpha", and projected rating levels "R_p" (Col. 19: 10-22).

Claim 42 recites that the probability that all of a specific user's preferences (Ra) will be equal to the all of the ratings provided by disparate users (R_i) is assumed to be l/n, where n is a number of the disparate users. So, as an example, if there are 5 disparate users, then the probability that all of a specific user's preferences will be the same as all the ratings provided by the other users is 1 in 5. For a higher number of disparate users, it is then less likely that a user's preferences will all be equal to all ratings provided by the disparate Users. For a smaller number of users, there is a higher probability that all of a user's preferences will mirror all of the preferences of the other users. Since this feature depends entirely on the preferences of the users, the invention of Robinson is inherently capable of this feature.

With regard to claims 44 and 57, Robinson discloses the personality generator employs a

Bayesian network to calculate the probabilities that the user has a personality type substantially

similar to personality types of the plurality of disparate users and employing a Bayesian network in

connection with recommending the item to the user (Col. 8: 55-67; Col. 14:53 - Col. 15: 20).

With regard to claim 46-47, Robinson discloses implementing the invention with a server

(Col. 4: 37-40), and a network (Col. 4: 7-17).

With regard to claim 49, Robinson discloses selectively requesting attributes from the user

based upon a value of obtaining the information (i.e., similarity value) (Col. 6: 37-40).

With regard to claim 53, Robinson discloses one or more of the attributes being rating to

items. (Col. 6: 37-40).

With regard to claim 54, Robinson discloses the items being one or more of video content,

textual content, audio content, image content, multi-media content, a service, a consumer good, a

business good, clothing, and a financial instrument. (Col. 8: 36-44).

4.   Claims 35 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson

(US Patent No. 5,884,282) in view of Altschuler et al. (US Patent No. 6,012,052), Smolen (US Patent

No. 5,915,243), and Fayyed et al. (US Patent No. 6,643,645), as applied to claims 34 and 48 above, and further in view of Knight et al. (US Patent No. 6,571,234)

With regard to claims 35 and 56, Robinson does not explicitly disclose the feature of a pruning facility employed to reduce a number of known attributes to consider when generating the personality types of the plurality of users.

Knight et al. teach the concept of pruning reduce a number of known attributes (i.e., unpopular categories of data) to consider when generating the personality types of a plurality of users (i.e., interests of its users) and thereby selectively reducing a number of attributes (Col. 25: 29-38).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the teaching of Knight et al. into the invention of Robinson in order to reduce clutter.

Response to Arguments

5.   Applicant's arguments filed 10/09/2007 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., user reported values with a distributed error, time of day context, current mood context) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Breese et al. (USPN 6,018,738) disclose a collaborative filtering method including adding

filler values such that fewer matched values are required for a prediction.

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office

action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

        A shortened statutory period for reply to this final action is set to expire THREE MONTHS

from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to VICTOR CHEUNG whose telephone number is (571)270-1349. The

examiner can normally be reached on Mon-Fri, 9-5:00.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Robert Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization

where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system,

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V. C./
Examiner, Art Unit 3714

/Ronald Laneau/
Supervisory Patent Examiner, Art Unit 3714
04/14/08